

17(4,10)

AUTHORS:

Nuzhdin, N. I., Corresponding Member AS USSR, Nizhnik, G. V. SOV/20-126-1-51/62

TITLE:

The Effect of γ -Rays of Co^{60} on Early Stages of Embryogeny in Rabbits (Vliyaniye gamma-luchey Co^{60} na ranniye stadii embriogeneza krolikov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 187-190 (USSR)

ABSTRACT:

Among the poorly examined aspects of the biological effect of ionizing radiation, the effect on the embryogeny of mammals has to be mentioned. Even the latest work dealing with this problem (Refs 10-13) leaves a lot unsaid. In the present article results are given concerning the subject mentioned in the title. One hour before pairing, a female rabbit was treated with rays. The single dose amounted to 850, 300 and 100 r. The dose intensity was 150 r/min. The female animal was then impregnated with sperms of the male animal, not treated with rays. The developing zygote was examined 20, 24, 48, 72, and 96 hours after the female had been paired with a male animal which had undergone a vasectomy. After opening the abdominal cavity, the zygote was

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The Effect of γ -Rays of Co^{60} on Early Stages of Embryogeny in Rabbits SOV/20-126-1-51/62

washed out of the oviduct and of the uterus with a 0.9% NaCl solution. The living macrogametes and zygotes were picked out of the liquid and examined in a hanging drop under the microscope. In table 1 it can be seen that 40 female animals were treated with rays and ovulation occurred in 32 of them. The rest showed no opening of the follicle. All of the 20 female animals used for the purpose of control showed ovulation, there was no exception. 70% of the macrogametes of animals treated with rays were fertilized (control 97%). Due to the results achieved, the authors arrive at the conclusion that ray treatment of female animals just before ovulation, does not only reduce the capability of impregnation, but also disturbs the further development of the fertilized macrogamete. This is expressed in the inhibition of the division of the macrogamete and of the development into further stages. Furthermore the macrogamete of the female animal under ray treatment stays 24 hours longer in the oviduct than that of the control animals. The doses of 100 and 300 r also disturb the normal development of the zygote (Table 1). On account of all this one may say that the macrogametes of female animals which underwent ray

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The Effect of γ -Rays of Co^{60} on Early Stages of Embryogeny in Rabbits

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treatment, as mentioned above, are highly radio-sensitive. There are 1 table and 14 references, 7 of which are Soviet.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences, USSR)

SUBMITTED: February 25, 1959

Card 3/3

NUZHDIN, N.I.; POMERANTSEVA, M.D.; KUZNETSOVA, N.N.

Changes in the radiosensitivity of animals resulting from previous
X irradiations. Izv. AN SSSR. Ser.biol. no.6:851-864 N-D '60.

(MIRA 13:11)

1. Institute of Genetics, Academy of Sciences of the U.S.S.R.
Moscow.

(X RAYS--PHYSIOLOGICAL EFFECT)

NUZHEDIN, N.I.; SHAPIRO, N.I.; CHUDINOVSKAYA, G.A.; PANKOVA, N.V.

Effect of protective substances on mammalian gonads. Zhur. ob.
biol. 21 no.6:430-438 N-D '60. (MIRA 14:1)

1. Institut genetiki i Institut biofiziki AN SSSR.
(RADIATION PROTECTION) (GENERATIVE ORGANS)

LYSENKO, T.D.; NUZHDIK, N.I.

For materialism in biology. Trudy Inst. gen. no. 27:5-53 '60.
(MIRA 13:12)

(BIOLOGY)

BUZHDIN, N.I.; DOMAREVA, O.P.

Direct and indirect effects of ionizing radiation on the
mitotic activity of corneal epithelium. Trudy Inst. gen.
no. 27:339-347 '60. (MIRA 13:12)
(X rays--Physiological effect)
(Karyokinesis)

NUZHDIK, N.I.; NIZHNIK, G.V.

Effect of gamma rays of Co⁶⁰ on early stages of embryogenesis in rabbits. Trudy Inst. gen. no. 27:348-358 '60. (MIRA 13:12)
(Gamma rays--Physiological effect)
(Embryology--Mammals)

17 (10)
AUTHORS:

Muzhdin, N. I., Corresponding
Member AS USSR, Pomerantseva, M. D.,

S/020/60/130/06/050/059
B011/B017

Kuznetsova, N. N.

TITLE:

Increase of the Resistance of Animals to the Effect of Ionizing
Radiation as a Result of Previous X-Ray Treatment

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 6, pp 1359 - 1361
(USSR)

ABSTRACT:

The authors wanted 1) to investigate the type of the change in radiation sensitivity of animals as a result of previous irradiation; 2) to determine the dependence of the protective effect on the experimental conditions. For this purpose 2.5-month-old (mainly male) white mice were used. The authors studied a) the dependence of the protective effect on the dose of the first irradiation, and b) the same from the period between the first and the second irradiation. The first radiation was made with 8 doses: 15, 25, 50, 100, 150, 200, 250, and 400 r. The dose of the second irradiation was 600 r. The following served as characteristic values of the radiation damage: I. survival of the mice on the 30th day after the second irradiation; II. average lifetime of the perished animals; III. change of the

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body-weight; IV. changes of the characteristic values of the peripheral blood. The following results were obtained: I. A protective effect is achieved by previous irradiation with doses of 50-250 r a fortnight before the second irradiation (Table 1). The maximum protective effect was achieved by a dose of 150 r of the first irradiation (Fig 1). Using 800 r in the second irradiation no protective effect could be achieved. A previous irradiation for 4 times with 50 r at intervals of 1 week produced no protective effect. II. In all cases of an effective protective effect of the first irradiation, the average lifetime of the test animals was somewhat longer than that of the control. III. and IV. No protective effect could be observed. Therefore, the type of protective effect due to previous irradiation differs from the effect produced by chemical protective agents (carbon monoxide, sulfurous compounds, narcotics). In the latter case also a rapid restoration of the body-weight and of the system of blood formation takes place. Among the hypotheses concerning the nature of the protective effect of previous irradiation the authors regard two of them as being the most probable:

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1) The protective effect is perhaps connected with the increase of the regeneration processes in the previously irradiated organism. 2) It may also be assumed that the protective effect is caused by the production of antibodies against the products of protein decomposition by the organism. At present, sufficient proofs for this or that hypothesis are lacking. However, they do not exclude each other. They may be only two sides of an adaptation reaction of the organism to ionizing radiation. The increase in the radiation resistance has also been found in plants and bacteria. At present, it is still difficult to find out whether this phenomenon is based on a common rule. There are 1 figure, 1 table, and 22 references, 6 of which are Soviet.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences, USSR)

SUBMITTED: November 26, 1959

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NUZHIDIN, N.I.; NIZHNIK, G.V.

Effect produced by irradiating rabbit spermatozoa with gamma rays
on fertilization and early stages of embryonic development. Dokl.
AN SSSR 134 no.6:1457-1460 O '60. (MIRA 13:10)

1. Chlen-korrespondent AN SSSR (for Nuzhdin).
(Gamma rays--Physiological effect) (Spermatozoa)

NUZHDIN, N.I.; DOZORTSEVA, R.L.

Effect of oxygen on barley seeds irradiated during the period of
organic rest. Izv. AN SSSR. Ser. biol. 26 no.5:679-692 S-0 '61.

(MIRA 14:9)

1. Institute of Genetics, Academy of Sciences of the U.S.S.R.,
Moscow.

(PLANTS, EFFECT OF GAMMA RAYS ON)

(PLANTS, EFFECT OF OXYGEN ON)

(SEEDS)

NUZHDIN, N.I.; NECHAYEV, I.A.

Inherited interlinear differences in the radiosensitivity of mice.
Trudy Inst. gen. no.28:381-401 '61. (MIRA 14:11)
(X RAYS--PHYSIOLOGICAL EFFECT)

NUZHDIK, N.I.; NIZHNIK, G.V.

Effect of gamma irradiation of spermatozoa fertilization and
early stages of development in rabbits. Trudy Inst. gen. no.28:
402-409 '61. (MIRA 14:11)
(GAMMA RAYS--PHYSIOLOGICAL EFFECT) (SPERMATOZOA)

21.6300 1138, 1565

20744
S/020/61/137/002/018/020
B103/B215

AUTHORS: Nuzhdin, N.I., Corresponding Member AS USSR,
Pomerantseva, M.D. and Kuznetsova, N.N.

TITLE: Comparison of single and fractional action of fast
neutrons on the testes of mice

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 2, 1961, 438 - 440

TEXT: The authors compare the biological action of single and fractional treatment with fast neutrons on the testes of mice. Data published on this problem differ considerably. Above all, the authors studied the total damage caused by fractional treatment. Changes in weight and in the histological aspects of the testes characterized the degree of damage. Fast neutrons were produced by a 100-kw nuclear reactor. The application of a radiation dose of 100 rad was: a) single and total, b) divided into four parts with a total of 25 rad each per day. The animals were killed between the 2nd and 70th day after irradiation. Their testes were fixed with Zenker's liquid as modified by Maksimov [Abstracter's note: not explained in the text], colored, and microscopically studied. Histolo-

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Comparison of single and ...

gical sections were made at different moments after irradiation, on the basis of the types of germinal epithelium cells found in different stages of gametogenesis (method by L.C. Fogg, R.F. Cowing, Cancer Res., 11, 23, 1951, Ref. 4). The authors supplemented these methods by classifying the system into three stages. All cells of the germinal epithelium were divided into five groups: spermatogonia, prespermatocytes, spermatocytes, spermatids, and sperms. Table 1 shows the effect of dividing the 100-rad dose into four fractional doses on the change in the weight of the testis. Hence the authors conclude that the latter is considerably reduced by single and fractional irradiation, i.e., mainly on the 35th day after irradiation. Fast neutrons are 5-6 times as effective as X-rays. The degree of weight reduction is constant regardless whether the 100-rad dose is applied totally or in four portions of 25 rad each. On the 70th day after irradiation the weight of the testes had not been restored. The intensity of regeneration was equal in both experimental groups. As to the spleen, the case was different since its loss in weight was lower with fractional radiation doses (Table 1) and X-rays. Germ cells, starting with the youngest (spermatogonia), gradually disappear under the action of fast neutrons. At a dose of 100 r, spermatid ducts were found to be not completely empty,

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Comparison of single and ...

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as destroyed mature cells were replaced by younger ones. Also in this case, the biological effects of single and fractional doses were practically equal. The authors state that the action of fast neutrons is not reduced by fractional doses. They thank B.M. Isayev, Yu.I. Bregadze and V.A. Kvasov for valuable advice. There are 2 figures, 1 table and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English language publication reads as follows: G.J. Neary, R.J. Munson, R.H. Mole, Chronic Radiation Hazards, London, Paris, N.Y., Los Angeles, 1957.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics, Academy of Sciences USSR)

SUBMITTED: December 10, 1960

4 Контроль				Доза	2			7		
1. Орган	5 вес		число животных		5 вес		чис. ло жн. вост. ных	5 вес		число живот. ных
	мг	% от веса тела			мг	% от веса тела		мг	% от веса тела	
				10						
Семенники	191	0,59	10	100 rad	179	0,64	8	156	0,54	8
Селезенка	123	0,37	10	25 rad x 4	153	0,66	8	151	0,52	6
				100 rad	53	0,21	8	93	0,32	8
				25 rad x 4	73	0,31	7	117	0,40	6

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NUZHDIU, N. I.

(e)
Some Physiological and Biochemical Peculiarities of Mice with Differing Inborn Radiosensitivity

B. M. Grayevskaya, N. I. Nuzhdin, I. A. Nechaev and R. N. Schedrin

Investigations on the radiosensitivity of different strains of animals do not, as a rule, involve the analysis of physiological, metabolic or anatomic peculiarities defining the given strains. In contrast, studies of physiological and biochemical differences between strains are generally carried out without relation to radiosensitivity.

A comparison was made of the body weight and weight of liver, spleen, suprarenal glands, thymus and testicles, and of the level of adrenal and carbohydrate metabolism, between three strains in a normal state (BALB/c, C₃H and CC₁-Br) and one population (albino) of mice characterized by differing radiosensitivity as defined by the LD 50/30 dose.

It has been shown that radioresistant strains of mice (CC₁-Br and albino population), as compared with radio-sensitive ones (BALB/c and C₃H) have greater weights of liver, spleen and thymus, a higher content of catecholamines in the suprarenal glands, and a reduced glycogen level in the liver tissue. The latter phenomenon appears to be of a secondary order and depends to a considerable extent on the intensity of the catecholamine metabolism in the suprarenal glands.

Institute of Genetics, USSR Academy of Sciences, Moscow

report presented at the 2nd Intl. Congress of Radiation Research,
Harrogate/Yorkshire, Gt. Brit. 5-11 Aug 1962

44907
S/872/62/000/000/001/006
B144/B180

27.12.20

AUTHORS: Nuzhdin, N. I., Dozortseva, R. L.

TITLE: Cytologic analysis of barley seeds gamma-irradiated in the state of organic rest (Peculiarities in the formation of chromosome aberrations, oxygen effect)

SOURCE: Deystviye ioniziruyushchikh izlucheniya na organizm. Inst. genetiki AN SSSR. Ed. by N.I. Nuzhdin. Moscow, Izd-vo AN SSSR, 1962, 5-30

TEXT: After a comprehensive review of Soviet and Western sources, the present experiments are described. Three types of barley seed with different organic rest periods and radiosensitivity, i.e., Moscow winter (A), Odessa-17 (B) and Yugoslav winter (C), were Co^{60} irradiated with 12 cu. The frequency of radiation-induced formation of chromosome bridges in the cells of the rootlets was investigated for each barley sort in 3 groups of seeds after passing out of the state of organic rest either: 1) spontaneously; 2) artificially after removal of the seed coat and puncture near the seed bud, with immediate germination; 3) as 2),

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Cytologic analysis of barley seeds ...

S/872/67/000/000/001/006
B144/B150

but with germination after 10 or 20 days. In all 3 barleys the chromosome aberrations were ~100% higher in groups 1 and 3 than in 2. To resolve the controversies on the cause of organic rest, which many authors attribute to anoxia, the effect of N_2 , O_2 , air and vacuum on the number of chromosome aberrations was studied in a further series of tests where A and B were irradiated in organic and induced rest. The results are represented by the order $I^O = I^A = III^O = III^A > I^N = IV = II^O = II^A =$
~25% ~7%

$III^N = III^V > II^N = II^V$, (3%), where I are seeds irradiated in organic rest and kept in induced rest after this; II are seeds treated as in I, but germinated immediately after leaving the state of rest; III are seeds irradiated in induced rest; N = nitrogen; O = oxygen; A = air; and V = vacuum. Two previous assumptions are confirmed: The state of organic rest is the result of anoxia caused by the impermeability of the seed coat to oxygen. Irradiation produces real and potential breaks of chromosomes; under the effect of O_2 the potential breaks develop to real breaks (the aberration percentage increases), and in the complete absence of O_2 they disappear. There are 4 figures and 12 tables.
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42681
S/747/62/000/000/002/025
D268/D307

27 1220

AUTHORS: Nuzhdin, N. I., Shapiro N. I. and Nechayev, I. A.
TITLE: Comparative characteristics of radiosensitivity in different lines of mice in relation to genetics. The role of hereditary characteristics in animal radiosensitivity

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 24-38

TEXT: Radiosensitivity was studied in ca. 2 1/2 month-old male and female mice in 4 lines and 1 subline, irradiated with single x ray doses at 350, 425, 500, 575 and 650 r. Interlinear differences in radiosensitivity were observed. For males LD_{50/30} fluctuated in the range 538 - 413 r and for females in the range of 559-465 r. A close similarity in irradiation reaction in intralinear males and females was indicated by the high positive correlation coefficient for LD₅₀ values for males and females of a single line determined in inter-linear mortality comparisons. The data showed that females were

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Comparative characteristics of ...

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somewhat more resistant than males. LD_{50/30} for males of line S₃NA was 12.8% above that for females, and 3 - 4% for the other lines. Average life duration declined as the dose increased. Interlinear differences in life duration were more pronounced at 350 and 425 r, evening out somewhat as absolute lethal effects were approached. In contrast to males, females showed little interlinear differences in life duration. Comparison of life duration in males and females in 3 lines showed it to be somewhat higher in the former than in the latter at 350 and 425 r. It was good in females at 575 and 650 r. The physiological mechanisms of radiation death in animals of lines differing in radiosensitivity seemed to be uniform. There are 7 figures and 6 tables. X

ASSOCIATION: Institut genetiki AN SSSR (Institute of Genetics AS USSR) and Institut biologicheskoy fiziki AN SSSR, Moskva (Institute of Biological Physics AS USSR, Moscow)

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42689

5/747/62/000/000/010/020
0268/0307

271220

AUTHORS: Kuzhain, A. I., Shapiro, N. I., Pomerantseva, M. D. and
Kaznetsova, N. K.

TITLE: A comparative study of the effectiveness of single and
fractionated x ray irradiation of testes in mice

SOURCE: Radiatsionnaya Genetika; sbornik rabot. Otd. Biol. Nauk
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 115-132

SUMMARY: To determine the comparative effectiveness of single and
fractionated doses of x rays on testes and its relationship to dose
size and the degree of fractionation, 3 month-old male mice were
wholebody irradiated at 100 r (single dose; 4 x 26 r at 1-day in-
tervals) and 400 r (single dose; 4 x 26 r at 4-day intervals; 4 x
100 r at 2-day intervals; 40.5 r for 6 days and 40 r for 10 days).
Testes were also locally irradiated at 1,000 r (single dose; 4 x
250 r at 2-day intervals). Spleen, thyroid gland,
and leucocytes were studied to determine the specific reaction
of gonads to fractionation. In the 3 series, 491, 492, and 49 ani-

A comparative study ...

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0266/0307

Mice were studied respectively and histological examinations were made of 528 testes. Results showed that cumulative doses of 100 and 400 r caused virtually the same degree of injury to testes whether given singly or fractionated. The somewhat earlier reduction in testes weight and movement of the germinal epithelium cells followed by more rapid regeneration with a fractionated dose of 400 r was due to the time factor. At 1,000 r, however, fractionation reduced injury, showing that the effects of fractionation are influenced by cumulative dose size. At a fractionated dose of 400 r, thyroid gland, spleen and leucocytes suffered less injury than with a single dose. There are 1 figure and 2 tables.

ASSOCIATION: Institut Genetiki AN SSSR (Institute of Genetics AS USSR) and Institut biologicheskoy fiziki AN SSSR, Moscow (Institute of biological Physics AS USSR, Moscow)

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42690

S/747/62/000/000/011/025

D296/D307

071245
AUTHORS: Luzhdin, M. I., Shapiro, N. I., Petrova, O. N. and Ki-
tayeva, O. N.

TITLE: The influence of x and γ radiation upon the oestrus of
mice

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk
AN SSSR, Moscow, Izd-vo AN SSSR, 1962, 133-179

TEXT: Histological and cross-breeding methods as well as observa-
tion of the oestrus have been extensively used to study the mecha-
nism responsible for radiation-produced sterility. The authors cri-
ticize the technical shortcomings of previous studies which led to
contradictory results. They studied the effect of ionizing radiation
upon the fertility of female mice, by following up the oestrus us-
ing unstained vaginal smears, taken daily in the first three months,
and also in the sixth month after exposure to total body radiation.
The phases of the cycle were established qualitatively and quanti-
tatively on the basis of the relative proportion of the 3 main ele- /

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The influence of x ...

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J296/D307

ments: epithelial cells, keratinized flakes and leucocytes. As the oestrus represents a satisfactory but nevertheless indirect index of fertility, the number of pregnancies and of progeny was also recorded as a direct indication after the irradiated females had been kept with males for 40 days. A single exposure to x rays was found to decrease the number of cycles and their frequency in the group total. Within the cycle the proportion of the pro-oestrus and oestrus stage were diminished and the proportion of the met-oestrus and di-oestrus stage correspondingly increased. The degree of these changes was directly dependent on the dose and on the time since the exposure. Doses under 50 r had no effect upon the oestrus although fertility was impaired even by doses of 15 - 25 r. After exposure to 50 r there is a "latency period" of 6 weeks during which no effect is noticed and which becomes shorter after exposure to higher doses (100 - 400 r). 3 months after the irradiation no cycles could be observed in any of the animals. The disorders were irreversible, at least for the period of observation (6 months). Nulliparous and multiparous mice as well as mice of different strains responded in a similar manner. Chronic exposure to γ rays, even in

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The influence of x ...

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Small doses, very close to the maximum permissible dose, led to similar changes after a latency period of 12 months (0.4 r daily - total dose 118.7 r) up to 15 months (0.2 r daily - total dose 72.8 r or 0.1 r daily - total dose 36.4 r). 0.05 r daily had no effect upon the oestrus. There are 13 figures and 12 tables.

ASSOCIATION: Institut genetiki AN SSSR (Institute of Genetics, AS USSR) and Institut biologicheskoy fiziki AN SSSR, Moskva (Institute of Biological Physics, AS USSR, Moscow)

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LL910

S/872/62/000/000/005/006
B144/B186

27 1220

AUTHORS: Nuzhdin, N. I., Nechayev, I. A.

TITLE: Effect of radiation blockers on survival and changes in the internal organs of x-ray irradiated mice of different radio-sensitivity (Diethyl stilbestrol effect)

SOURCE: Deystviye ioniziruyushchikh izlucheniye na organizm. Inst. genetiki AN SSSR. Ed. by N. I. Nuzhdin. Moscow, Izd-vo AN SSSR, 1962, 173 - 197

TEXT: Three inbred strains of mice, CC₅₇-brown (I), C₃H (II) and BALB/c (III), were subjected to a single whole-body irradiation of 600 r in order to study the effect of one prophylactic sc injection of 0.2 mg diethyl stilbestrol propionate (D) administered 10 days before irradiation. The LD_{50/30} for these mice were 538, 490 and 442 r, respectively. Administration of D reduced the total mortality by 50 % in I and II and by 66.7 % in III, the first peak (up to 5 days) being significantly reduced and the second peak (10-12 days) disappearing almost completely. The weights of

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B144/B186

Effect of radiation blockers on ...

thymus, liver, spleen, suprarenal glands and testes were determined. 2, 4, 7, 14, 21, 30 and 60 days after irradiation. Groups II and III differed originally only in the weight of the testes, but group I had distinctly higher liver and spleen weights than the two others. In non-irradiated mice, D administration did not affect the total body weight. The radiation-induced weight variations of the thymus were similar in the 3 groups and not affected by D. The highest weight of liver with the least fluctuations was found in the most radioresistant strain I. The effect of D on this organ became evident 2 weeks after the irradiation. The weight curves of the spleen whose radiosensitivity is reflected in the second peak of the mortality curve (failure of the hematopoietic system) showed the highest absolute values and an earlier period of overcompensation in group I. D accelerated regeneration, inhibited overcompensation and equalized the otherwise differing spleen reactions of the 3 strains. The weight increases of the suprarenal glands produced by separate and combined irradiation and D administration were similar in the 3 groups. The difference in natural radiosensitivity was not reflected in the weight curves of the testes whose regeneration was not improved by D. The divergent radioresistance of the 3 strains is attributed to the different radioresistance of their spleen and liver, which is evident from the Card 2/3

Effect of radiation blockers on ...

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B144/B186

weight curves as well as the diethyl stilbestrol effect. There are
10 figures and 20 tables.

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42691

S/747/62/000/000/012/025
D296/D307

2/1220

AUTHORS: Shapiro, M. I., Nuzhdin, M. I. and Kitayeva, O. N.

TITLE: Study of the causes leading to disorders of the oestrus
in mice exposed to total body radiation

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk.
AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 180-210

TEXT: In a previous paper (Sb. rabot po radiobiologii, Izd-vo AN
SSSR, 1955, 115-149) the authors had shown that the oestral cycle
in mice is highly radiosensitive. In the present study the authors
tried to establish whether the sterility caused by ionizing radia-
tion is due a) to impairment of production of the gonadotrophic
hormone from the pituitary gland, b) interference with the response
by the vaginal epithelium to oestrogens, c) destruction of the ova-
rian follicles, or d) other causes. They also tried to devise an
experimental technique for the restoration of the oestrus. Mice were
exposed to total body irradiation by means of x rays in a dose of
100 r; homogenates of the pituitary glands were then used to carry

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S/747/62/000/000/012/25
D216/2307

Study of the causes ...

out the Zondek gonadotrophin reaction on infantile mice and were found to possess the normal gonadotrophic activity. The vaginal epithelium of the irradiated mice gave a normal response to injections of diethylstilboestrol, as shown by vaginal smears. To prove their contention that after-exposure to radiation of the ovarian follicles is the main cause of the oestral disorders, the authors transplanted normal ovaries into the irradiated mice, whereupon the normal oestrus cycle was restored. If the transplanted ovaries were surgically removed or underwent resorption the cycle again became disrupted. Histological investigation revealed complete absence of follicles and an almost complete lack of corpora lutea in the ovaries of the irradiated mice. These ovaries mainly consisted of stroma whereas the transplanted ovaries showed a normal structure. To establish whether very high doses of gonadotrophic hormone could still produce a response from any residual ovarian tissue in the irradiated ovaries the mice were given 60 mouse units of gonadotrophic hormone. The ovaries and uterus responded with an increase in weight and size but no restoration of the atrophied follicles could be observed. There are 13 figures and 6 tables.

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Study of the causes ...

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D296/D307

ASSOCIATION: Institut biologicheskoy fiziki i Institut genetiki
AN SSSR, Moskva (Institute of Biological Physics and
Institute of Genetics, AS USSR, Moscow)

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42692

S/147/62/000/000/013/025
D296/D307

271220

AUTHORS: Shapiro, N. I., Nuzhdin, N. I. and Petrova, O. K.

TITLE: The influence of x rays upon the survival rate and fertility of guinea pigs

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 211-235

TEXT: As a contribution to the comparative radiobiology of mammals the authors studied the lethal effects of x rays upon guinea pigs of both sexes and the sterility caused by irradiation in female guinea pigs. 250 animals were exposed to total body radiation with x rays in doses ranging from 100 to 2500 r at a rate of 42 - 56 r/min. Males proved to be much more radiosensitive: the minimum lethal dose for males was 500 r compared to 1000 r for females. The respective values for LD_{50/30} were 235 and 365 r. The males perished more rapidly and lost more weight. This marked sexual dimorphism has not been previously described for any other mammalian

Card 1/3

5/7/77/62/000/000/013/025
D256/D307

The influence of x rays ...

species. To study the sterility caused by total body irradiation the authors investigated the frequency and duration of the oestrous cycle in females using the opening of the vagina at the peak of the oestrus as an indicator: no significant difference could be found by this means between the irradiated and control animals. The direct effect of irradiation upon the ovaries was assessed by quantitative histological investigation and ovariectomy. Serial sections were made through the whole organ and the number of primordial follicles, Graafian follicles and poly-ovular cells was counted in every tenth section. It appeared that irradiation decreases the number of follicles, particularly of the growing primordial follicle at a rate proportional to the dose and the time allowed to elapse since the exposure. This fact implies that ionizing radiation exerts its effect upon fertility mainly by decreasing the capacity of the germinal epithelium to produce oocytes. In the control animals the weight of the ovaries could be related to the number of follicles counted. This was not the case in the irradiated animals, hence the weight is no reliable index of sterility caused by irradiation. According to their own investigations and

Card 2/3

The influence of x rays ...

S/747/62/000/000/013/025
D296/D307

data in the literature, 4 mammalian species can be arranged in the following (decreasing) order with regard to their radiosensitivity: mouse > man > rat > guinea pig. There are 6 figures and 5 tables.

ASSOCIATION: Institut biologicheskoy fiziki i Institut genetiki
AN SSSR, Moskva (Institute of Biological Physics and
Institute of Genetics, AS USSR, Moscow)

Card 3/3

NUZHDIAN, N.I.; DOZORTSEVA, R.L.

Characteristics of the formation of chromosome aberrations in
irradiation of seeds in the state of organic rest. Zhur. ob.
biol. 23 no.1:12-23 Ja-F '62. (MIRA 15:3)

1. Institute of Genetics, U.S.S.R. Academy of Sciences.
(CHROMOSOMES)
(PLANTS, EFFECT OF GAMMA RAYS ON)
(SEEDS)

GRASHCHENKO, N.I.; NUZHIDIN, N.I.

Biological sciences toward the fulfillment of tasks set in
the program of the CPSU. Zhur. ob.biol. 23 no.3:161-175 My-Je
'62. (MIRA 15:6)

(BIOLOGICAL RESEARCH)

S/020/62/143/003/028/029
B144/B101

AUTHORS: Nuzhdin, N. I., Corresponding Member AS USSR, Kuznetsova,
N. N., and Ramayya, L. K.

TITLE: Effect of x-ray irradiation of pregnant animals on variations
in the peripheral blood of their progeny

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 3, 1962, 717-720

TEXT: The postnatal effect of a single intrauterine x-ray irradiation of
200 r at different embryonal periods was studied in mice by complete
blood counts. (1) Hemoglobin quantity in newborn mice was most reduced
after irradiation on the 17th day of intrauterine life (i. u. l.)
(R = 8.6), but was soon restored to normal values; in 45-day old mice,
irradiation on the 13th day of i. u. l. produced a significant reduction
(R = 7.0) in spite of almost normal values at their birth.
(2) Erythrocyte numbers varied consistently with the hemoglobin quantity.
(3) Reticulocyte numbers were temporarily reduced in newborn animals
irradiated on the 13th - 19th day of i. u. l. (R = 3.7 - 5.3).
(4) The white blood count of newborn animals revealed no significant

Card 1/2

Effect of x-ray irradiation of ...

S/020/62/143/003/028/029
B144/B101

variations. Myelopoiesis was not inhibited. In 45-day old mice leucocyte numbers, neutrophils as well as lymphocytes, were significantly reduced after irradiation on the 12th day of i. u. l. ($R = 3.1$); whereas irradiation 1 day later affected only the number of neutrophils and reduction approximated significance ($R = 2.5$). Thus, the maximum effect on the red blood of newborn mice was detected after irradiation on the 17th day of i. u. l.; this is probably the most important period for bone marrow formation. Development of leucopenia and anemia in 45-day old mice irradiated on the 12th and 13th day of i. u. l. may be due to destruction of mesenchyme rudiments of blood-forming tissues. There are 4 tables and 7 Soviet references.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences USSR)

SUBMITTED: December 11, 1961

Card 2/2

NUZHIDIN, N.I.; NECHAYEV, I.A.; GRAYEVSKAYA, B.M.; SHCHEDRINA, R.N.

Some physiological and biochemical characteristics of mice
with different natural radiosensitivity. Dokl. AN SSSR 143
no.4:997-1000 Ap '62. (MIRA 15:3)

1. Chlen-korrespondent AN SSSR (for Nuzhdin).
(X RAYS--PHYSIOLOGICAL EFFECT) (ADRENOCORTICAL HORMONES)
(LIVER--GLYCOGENIC FUNCTION)

NUZHIDIN, N.I.; KUZNETSOVA, N.N.

Effect of X rays at different periods of embryonic development
on the testicles of pubescent mice. Dokl. AN SSSR 145 no.6:1393-
1395 Ag '62. (MIRA 15:8)

1. Institut genetiki AN SSSR. 2. Chlen-korrespondent AN SSSR
(for Nuzhdin).

(X RAYS—PHYSIOLOGICAL EFFECT) (TESTICLE)

NUZHIDIN, N. I., DOZORTSEVA, R. L., and SAMOKHVALOVA, N. S.,

"Dependence of the Effect of Dose Rate on the Physiological State of Irradiated Objects."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands,
2-10 Sep 63

NUZHDIN, N. I., and NIZHNIK, G. V.,

"The Effects of Protection Against Genetic Damage caused by Ionizing Radiation
in Mammalian Sex Cells."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands,
2-10 Sep 63.

L 19066-63

EWI(1)/EWI(m)/BDS/ES(j) AFFTC/AMD/ASD AR/K

ACCESSION NR: AP3004278

S/0216/63/000/004/0514/0525

AUTHOR: Nuzhdin, N. I.; Dozortseva, R. L.; Samokhvalova, N. S. 58

TITLE: Dependence of chromosome aberration frequency on irradiation /9
intensity and physiological condition of barley seeds

SOURCE: AN SSSR. Izv. Ser. biologicheskaya, no. 4, 1963, 514-525

TOPIC TAGS: barley, seed, chromosome, aberration, irradiation
intensity, gamma irradiation, natural dormancy, forced dormancy

ABSTRACT: Two types of barley seeds, Odessa 17 and Hibernating Moscow, were gamma-irradiated to study the effects of high and low radiation intensities on seeds in states of forced dormancy and natural dormancy. Odessa 17 and Hibernating Moscow were gamma-irradiated in both states with doses of 12 kr and 15 kr respectively at different intensities (Odessa 17, 423 r/min and 55 r/min; Hibernating Moscow, 301 r/min and 43 r/min). The frequency of cells with chromosome aberrations (dicentric bridge and acentric fragments) in the meristeme of the root tips was investigated during mitotic divisions. For seeds irradiated during the forced dormant state the effect of the radiation dose rate is sharply expressed regardless of
Card 1/2

L 19066-63

ACCESSION NR: AP3004278

germination time. The high radiation dose rates produce much higher percentages of chromosome aberrations in the root cells than the low rates. For seeds brought out of natural dormancy artificially and germinating immediately, the percentage of root cells with aberrations is the same for both the high and low radiation dose rates. The same seeds brought out of natural dormancy artificially and germinating 10 days later show differences in radiation intensities identical to the seeds irradiated in a state of forced dormancy. The frequency of chromosome aberrations in root cells depends on the physical conditions of irradiation (type of radiation, dose, rate) and the physiological state of the seeds during irradiation. Orig. art. has: 2 tables.

ASSOCIATION: institut genetiki akademii nauk SSSR (Institute of Genetics, Academy of Sciences SSSR)

SUBMITTED: 08Apr63

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: AM

NO REF SOV: 004

OTHER: 034

Card 2/2

L 13833-63

EWT(1)/EWT(m)/BDS/ES(b)

AMD/AFFTC/ASD

AR/K

ACCESSION NR: AP3003564

S/0020/63/151/002/0446/0448

AUTHORS: Mushdin, N. I. (Corr. member, AN SSSR); Nizhnik, G. V. 56

TITLE: Effectiveness of the defence of spermatozooids of rabbits from genetic injury caused by their irradiation in vitro

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 446-448

TOPIC TAGS: genetic injury, nitrogen, Beta-mercaptocethylamine, Beta-aminoethylisothiuronium, radiation, irradiation in vitro

ABSTRACT: A number of chemical preparations taken into an organism lower the effectiveness of exposure (radiation) saving the organism from lethal results. A study was made of the destruction of rabbit embryos, obtained from insemination of non-irradiated females with spermatozooids, irradiated with and without shielding by nitrogen, Beta-mercaptocethylamine (MEA), or Beta-aminoethylisothiuronium·Br HBr (AET). Only N₂ showed any shielding effect, lowering the frequency of deaths. Nature of the defense is believed to be based on lowering the percentage of oxygen dissolved in the spermatozoid, thus defending from the effect of radiation. MEA and AET, postulated as defensive agents were shown to react with the biological substrates, thus changing their radiosensitivity, but not changing the

Card 1/2/

NUZHDIN, N.I.; SHANGIN-BEREZOVSKIY, G.N.; PASTUSHENKO-STRELETS, N.A.

Change in the radiosensitivity of barley under changing life
conditions. Trudy Inst. gen. no.31:55-79 '64. (MIRA 17:9)

NUZHEDIN, N.I.; DOZORISEVA, R.I.; SAMOKHVALOVA, N.S.

Postradiation effect of storage in barley seeds, irradiated with gamma rays (Co^{60}), in the state of organic and forced dormancy. Izv. AN SSSR. Ser. biol. no. 4:577-586 J1-Ag '64.

(MJRA 17:10)

1. Institute of Genetics, Academy of Sciences of the U.S.S.R., Moscow.

NUZHDIK, N.I.; KUZNETSOVA, N.N.

Radiosensitivity of the lymphocytes of the peripheral blood
in vitro in animals belonging to various genotypes. Dokl.
AN SSSR 159 no.4:923-925 D '64 (MIRA 18:1)

1. Institut genetiki AN SSSR. 2. Chlen-korrespondent AN SSSR
(for Nuzhdin).

L 63555-65 EEO-2/ENG(j)/FSS-2/ENG(r)/EWT(1)/FS(v)-3/EEC(k)-2/ENG(v)/
 EAC(c)/ENG(a)-2/ENG(c) Po-4/Pe-5/Pq-4/Pac-4/Pae-2/Pi-4 TT/DD/GW
 ACCESSION NR: AP5017766 UR/0216/65/000/004/0576/0580
 581.167:629.195.2 78
 79 B
 AUTHOR: Nuzhdin, N. I.; Dozortseva, R. L.; Pastushenko-Strelets, N. A.;
 Samokhvalova, N. S.
 TITLE: The effect of space-flight factors on seeds of the spindle tree (Evonymus
 europaea)
 SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 4, 1965, 576-580
 TOPIC TAGS: manned space flight, Vostok 5, plant seed, germination, space flight,
 biological effect, weightlessness, gamma radiation, plant genetics, mitosis
 ABSTRACT: Experiments were conducted to study the previously noted stimulating
 effect of space-flight factors on plant seeds. Air-dried seeds of the European
 spindle tree (Evonymus europaea) were kept at room temperature for 8 months and then
 irradiated with Co⁶⁰ gamma rays (dose, 10 krad; intensity, 277 rad/min). Irradiated
 and unirradiated seeds were sent on the Vostok-5 flight. One control group of ir-
 radiated and unirradiated seeds was flown to the cosmodrome, and another was kept in
 Moscow. Spindle tree seeds were chosen for this study because they have a long
 germination period (12-18 months) and because they are in a state of forced dormancy.
 Card 1/2

L 63555-65

ACCESSION NR: AP5017766

as opposed to organic dormancy. It had been suggested that space-flight factors do not stimulate germination, but only cause the transition of seeds from the state of organic dormancy. After the flight, it was necessary to stimulate germination of the seeds, which obscured the study of the space-flight effect. After germination, rootlets were fixed, and the number of cells with chromosome aberrations was counted. Cytological analysis of the first series of experiments (seeds not previously irradiated) showed a reliable difference between experimental seeds and both controls. However, with previously irradiated seeds, statistically reliable differences were observed only between experimental samples and the Moscow control. The increased frequency of abnormal cell divisions in experimental material is proof that space-flight factors cause chromosome injuries in cells of spindle tree seeds. It was concluded that preliminary gamma irradiation of seeds and the subsequent influence of space-flight factors have a supplemental effect on the formation of cells with abnormal mitoses. The increased number of chromosome aberrations among samples flown to the cosmodrome, which was approximately the same in both series of experiments, is unexplained and requires further study. Orig. art. has: 1 table. [JS]

ASSOCIATION: Institut genetiki AN SSSR (Institute of Genetics, AN SSSR)

SUBMITTED: 18Jan65

ENCL: 00

SUB CODE: 18

NO REF SPV: 018

OTHER: 001

ATD PRESS: 4050

Card 2/2 dm

L 54840-65

ACCESSION NR: AP5017923

UR/0020/64/159/005/1151/1153

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Filev, K. A.

TITLE: Dependence of the yield of chromosome aberrations on the magnitude of the dose and the dosage rate in irradiation of seeds with gamma-rays

SOURCE: AN SSSR. Doklady, v. 159, no. 5, 1964, 1151-1153

TOPIC TAGS: gamma irradiation, cytology, plant genetics, irradiation dosimetry, radiation plant effect

ABSTRACT: Barley seeds were irradiated with gamma-rays in doses of 1, 5, 10, and 18 kr. Irradiation at every dose magnitude was carried out at dosage rates of 16, 47, 81 and 253 r/min. Upon germination of the seeds, a cytological study of the cells of the tips of primary roots was carried out. Late anaphases and early telephases of the first mitotic divisions were taken into consideration. The effect of radiation was estimated on the basis of the percentage of cells with chromosome bridging and chromosome fragments. At every dose applied, the percentage of cells with chromosome aberrations increased with increasing dosage rates; the increase became steeper with higher doses. There was a linear semilogarithmic relation between the

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L 54840-65

ACCESSION NR: AP5017923

percentage of chromosome aberrations and the dosage rate. With increasing dosage rates within the limits of the same dose, the percentage of cells with chromosome fragments increased, while that of cells with chromosome bridges remained constant. At increasing doses within the limits of the same dosage rate, the total percentage of aberrations increased linearly with the dose, the percentage of cells with fragments remaining equal to that of cells with bridges.

Orig. art. has: 1 figure, 2 graphs, 1 table.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics, Academy of Sciences SSSR); Tsentral'naya geneticheskaya laboratoriya Bolgarskoy Akademii sel'skokhozyaystvennykh nauk, Sofia (Central Genetics Laboratory, Bulgarian Academy of Agricultural Sciences)

SUBMITTED: 21Aug64

ENCL: 00

SUB CODE: LS, NP

NR REF SOV: 004

OTHER: 017

JPRS

Card 2/2

ACC NR: AT5024241

SOURCE CODE: UR/2670/65/000/032/0004/0017

AUTHOR: Muzhdin, N. I. (Corresponding member AN SSSR); Dozortseva, R. L.; Samokhvalova, N. S.

ORG: Institute of Genetics, Academy of Sciences, SSSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: The influence of inhibitors and activators of cellular metabolism on the number of chromosome aberrations after single dose and fractionated gamma irradiation of barley seeds

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniyy na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 4-17

TOPIC TAGS: plant genetics, radiation plant effect, barley, gamma irradiation, antibiotic, streptomycin, levomycetin, ATP

ABSTRACT: Air-dried seeds of two varieties of winter barley, Odesskiy 17 and Zimuyushchiy moskovskiy, were irradiated with Co60 gamma rays in a dose of 15 krad with dose power of 301 rad/min. Seeds were irradiated by two methods, in one dose and in two doses of 7.5 krad each separated by an interval of 15 days. Twenty-four hr after the first irradiation by the fractionated method, and 24 hr after single irradiation, seeds were soaked for 24 hr in solutions of levomycetin, streptomycin,

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3/47-06

ACC NR: AT5024241

ATP, and water. The yield of cells with chromosome aberrations (acentric fragments and dicentric bridges) in primary rootlets sprouted from treated seeds was counted. The percentage of cells with abnormal mitoses served as an index of the radiation effect. Experimental results showed that fractionated irradiation causes a weakening of the effect of gamma irradiation. Analysis showed the first dose to be twice as effective as the second. The lesser effect of the second dose determines the decrease in the total radiation effect. Of the three substances used (levomycetin, streptomycin, and ATP) during single irradiation, only streptomycin and ATP considerably reduced the percentage of chromosome aberrations as compared with seeds soaked in water. With fractionated irradiation, differences were established only for the Odesskiy 17 variety with streptomycin. Orig. art. has: 2 figures and 4 tables. [JS]

SUB CODE: LS/ SUBM DATE: none/ ORIG REF: 016/ OTH REF: 029

Card 2/2 DP

L 3952-66

ACC NR: AT5024242

SOURCE CODE: UR/2670/65/000/032/0018/0068

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Pastushenko-Strelets, N. A.;
Shangin-Berezovskiy, G. N.

ORG: Institute of Genetics, AN SSSR (Institut genetiki AN SSSR)

TITLE: The effect of ecological cultivation conditions and the physiological condition of seeds (degree of maturity) on radiosensitivity and the frequency and character of hereditary changes in gamma-irradiated barley

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniyy na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 18-68

TOPIC TAGS: plant genetics, biologic mutation, heredity, plant physiology, radiation plant effect, plant ecology

ABSTRACT: Experiments were conducted to determine the effect of different ecological conditions on the sensitivity to irradiation of gamma-irradiated barley seeds. The dose of gamma rays varied but did not exceed 12 krad. Experimental and control seeds were sown in Moscow, Estonia, Khibiny, Odessa, Kharkov, Leninavan, Kedabek, Kelbedzhar, and Pamir. Results showed a definite relationship between the radiosensitivity of plants grown from irradiated seeds and their ecological cultivation conditions. Furthermore, the cultivation conditions for plants of the generation preceding ir-

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UDC: 577.391

L 3952-66

ACC NR: AT5024242

radiation significantly influenced the radiosensitivity of seeds collected from them and sown under identical conditions. It is known that seeds of the same variety, irradiated at a different degree of maturity, have different radiosensitivity. It has also been established that different ecological conditions influence the variability of quantitative plant characteristics (such as height of the culm and length of the spike) differently in the first generation of barley grown from irradiated seeds. Important differences in these indices are also observed between control plants of the same variety grown under different conditions. Experiments showed that the influence of conditions of cultivation prior to irradiation on the variability of these quantitative indices is manifested fairly clearly and is retained in the second generation. Another part of this series of experiments showed that the number and character of structural changes in barley during irradiation frequently depends on the ecological conditions in which the plants grew prior to and after irradiation. The variability of quantitative and morphological features observed in the first generation of plants is a function of the different maturation phase of the seeds from which they grew. Structural changes in the barley spike are the result of irradiation. Thus, it was determined that the character of structural changes is connected with the maturation phase of irradiated seeds. The frequency and character of lethal chlorophyll mutations in the second generation of gamma-irradiated barley clearly depends on the cultivation conditions of the first generation. It was shown that cultivation conditions of the mother plants prior to irradiation have an essential influence on the frequency of appearance and character of lethal chlorophyll mutations in the second generation. Again, the frequency of appearance of chlorophyll mutations

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ACC NR: AT5024242

in the second generation of gamma-irradiated barley depends on the maturation phase of irradiated seeds. Viable mutations during gamma irradiation of barley are few, and thus no rule for their occurrence can be established. However, it must be noted that visible mutations occur most frequently when plants are cultivated prior to irradiation or afterwards under unnatural conditions. Orig. art. has: 15 figures and 43 tables. [JS]

SUB CODE: LS/ SUBM DATE: none / ORIG REF: 047/ OTH REF: 046/

Card 3/3 DP

L 5137-66 EwT(m)
ACC NR: AT5024246

SOURCE CODE: UR/2670/65/000/032/0119/0135

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Grayevskaya, B. M.

ORG: Institute of Genetics, Academy of Sciences, SSSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: The biochemical characteristics and radiosensitivity of different strains and species of mammals

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniyy na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 119-135

TOPIC TAGS: animal physiology, radiation biologic effect, radiosensitivity, biologic metabolism, rat, mouse, rabbit, guinea pig, hamster

ABSTRACT: Experiments were conducted with different species of mammals and different strains of the same species to compare their radiosensitivity and metabolic characteristics. Male rabbits, golden hamsters, guinea pigs, rats, and mice (4 different strains) aged 2-2.5 months were used. After x-ray irradiation with dose power of 47-52 rad/min, the LD_{50/30} of each experimental animal was determined, and they were arranged in order of increasing radiosensitivity as follows: rabbits

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UDC: 577.391

09010219

L 5137-66

ACC NR: AT5024246

(750—830 rad); rats (600 rad); mice, Kryukowskaya strain (563 rad); mice, CC₅₇Br strain (536 rad); golden hamsters (531 rad); mice, BALB/c strain (442 rad); and guinea pigs (400 rad). Experiments showed a higher level of catechol amines in the adrenals of more radioresistant species and strains. (This difference was more evident in individual species.) More radioresistant strains of mice also have a lower glycogen content in liver tissue and a lower blood-sugar level than do less radioresistant strains. Furthermore, there is a distinct difference in the character of blood-sugar changes when adrenaline hydrochloride is administered. In more radioresistant mice, the blood-sugar level increase is less marked upon introduction of adrenaline hydrochloride. Irradiation of radioresistant mice intensifies changes in the blood-sugar in response to adrenaline, whereas in radiosensitive mice irradiation first depresses this reaction and then intensifies it. In the spleen and liver of more radioresistant strains and species, proteolytic processes proceed more slowly. The ability of proteinases isolated from these organs to break down casein diminishes gradually with increased natural radioresistance of animals. The reasons for the correlations observed are discussed, together with the possibility of using these biochemical differences to assess the relative radiosensitivity of mammals. Orig. art. has: 4 figures and 10 tables. [JS]

SUB CODE: LS/ SUBM DATE: none/ ORIG REF: 018/ OTH REF: 007

OC
Card 2/2

L 5045-66 EWT(m)

ACC NR: AT5024247

SOURCE CODE: UR/2670/65/000/032/0136/0146

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Kuznetsova, N. N.

ORG: Institute of Genetics, Academy of Sciences, SSSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: In vitro and in vivo radiosensitivity¹⁹ of peripheral blood constituents for animals of different genotypes ^{18/}

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniya na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 136-146

TOPIC TAGS: radiation biologic effect, radioresistance, mouse, leukocyte, lymphocyte, peripheral blood

ABSTRACT: It is demonstrated that the number of leukocytes in the peripheral blood of mice under normal conditions can be used to determine their radioresistance. However, no connection was established between red blood indices and the radioresistance of animals. Experiments showed that surviving Kryukovskaya mice had more leukocytes prior to irradiation than the animals which died. Leukocytes in mice of the BALB/c strain were more severely affected by irradiation than those in mice of the CC₅₇Br strain (see Fig. 1). These differences increased with a decrease in radiation dose.

UDC: 577.391

Card 1/3

L 5045-66

ACC NR: AT5024247

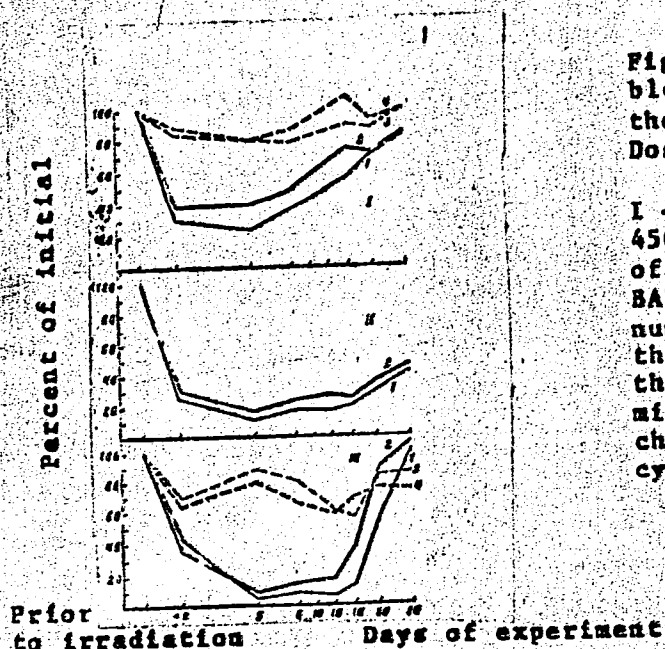


Fig. 1. Reaction of peripheral blood to irradiation in mice of the CC₅₇Br and BALB/c strains. Doses:

I - 200 rad; II - 300 rad; III - 450 rad; 1 - change in the number of leukocytes in mice of the BALB/c strain; 2 - change in the number of leukocytes in mice of the CC₅₇Br strain; 3 - change in the number of erythrocytes for mice of the BALB/c strain; 4 - change in the number of erythrocytes for mice of the CC₅₇Br strain.

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L 5045-66

ACC NR: AT5024247

Luminescent microscopy was used to detect differences in the radiosensitivity of lymphocytes of the peripheral blood in vitro in different species of animals and man. As a result of this study, the following sequence was established (in order of decreasing radiosensitivity): rabbit > man/rat > mouse > guinea pig. This arrangement by radiosensitivity of lymphocytes in vitro does not coincide with that by LD50/30. Statistically reliable sex-dependent differences in the radiosensitivity of lymphocytes in vitro were not observed. Individual differences in the radiosensitivity of lymphocytes in vitro of mice were not connected with their death after irradiation with a near-lethal dose. Orig. art. has: 3 figures and 8 tables. [JS]

SUB CODE: LS/ SUBM DATE: none/ ORIG REF: 022/ OTM REF: 004

CC
Card 3/3

L 8239-66 EWT(m)

ACC NR: AT5024248

SOURCE CODE: UR/2670/65/000/032/0147/016

AUTHOR: Nuzhda, N. I. (Corresponding member AN SSSR); Kuznetsova, ²³~~22~~ N.N.

ORG: Institute of Genetics, Academy of Sciences USSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: Damage to the gonads of male mice developed from irradiated embryos

SOURCE: ¹⁹ AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniya na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 147-161.

TOPIC TAGS: radiation biologic effect, radiation injury, animal physiology, biologic reproduction, mouse, spermatogenesis, relative biologic efficiency

ABSTRACT: Detailed consideration is given to the influence of x-ray and neutron irradiation of animal embryos in different stages of development on their sexual organs when they mature. The effects of both types of ionizing radiation in this respect are compared, restorative processes in the testes are studied, and the effects of single and fractionated irradiation of embryos on the development of mature animals (mice) are contrasted. In this series of experiments, female

Card 1/3

UDC: 577.391

L 8239-66

ACC NR: AT5024248

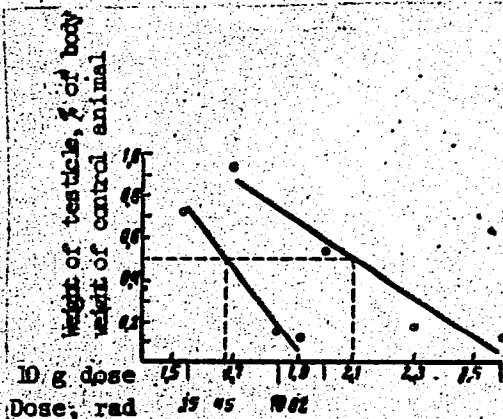


Fig. 1. Effect of fast neutron and x-ray irradiation of mouse embryos on weight differences in the testes of mature animals.

white mice in their first pregnancy were irradiated with x-rays in doses of 20, 50, 100, 200, and 400 rad (with dose powers from 3.7—23 rad/min) and with neutrons in doses of 35, 70, and 82 rad. Male offspring of irradiated mice were killed at 1, 1.5, 3, and 6 months of age. Experimental results showed that the radiosensitivity of mouse testes during embryonic development considerably exceeds the sensitivity of the gonads in adult animals. The most radiosensitive were testes of mice

Card 2/3

L 8239-66

ACC NR: AT5024248

0

irradiated on the 15th--17th day of embryonic development. Maximum damage to the testes was observed in animals developed from embryos irradiated on the 16th day of embryonic development. This is due to the intense differentiation processes occurring in the testes in just this period. The lowest x-ray doses causing injuries in the testes of animals irradiated in this critical period were 50--100 rad. With 50 rad these injuries were observed in month-old mice, and by 1 1/2 months spermatogenesis was restored. With a dose of 100 rad, spermatogenesis was restored only in the 6th month, and the weight of the testes continued at a decreased level. X-ray doses of 200 and 400 rad caused irreversible changes in mouse testes. Animals irradiated with these doses in the critical embryonic period were sterile. The RBE of fast neutrons for testes during the period of embryonic development, as compared with x-rays, was 2--2.5. In the case of both x-ray and neutron irradiation, the weight of one testicle decreases proportionally to the logarithm of the dose (see Fig.1). In the case of fractionated irradiation, injuries to the testes in their critical embryonic period were cumulative. Orig. art. has: 8 tables and 11 figures. [JS]

SUB CODE: LS/ SUBM DATE: 00/ ORIG REF: 009/ OTH REF: 023

OC
Card 3/3

L 8206-66 EWT(m)

ACC NR: AT5024253

SOURCE CODE: UR/2670/65/000/032/0206/0222

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Nechayev, I. A.

ORG: Institute of Genetics, Academy of Sciences SSSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: The effect of protective substances¹⁹ on survival and changes in internal organs of mice of various radiosensitivities after x-ray irradiation: Effect of carbon monoxide²⁴

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965. Deystviye ioniziruyushchikh izlucheniy na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 206-222

TOPIC TAGS: radiation biologic effect, animal physiology, x ray . irradiation, mouse, liver, thymus gland, spleen, carbon monoxide, diethylstilbestrol

ABSTRACT: Differences between the effects of carbon monoxide on two different strains of mice irradiated with the same dose of x-rays were determined. Male mice of CC₅₇Br (radioresistant) and C₃H (radio-sensitive) strains were used. These strains are also characterized by differences in body weight and in the weight of certain organs—thymus, liver, spleen, and testes—which were used as indicators of the radia-

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UDC: 577.391

L 8206-66

ACC NR: AT5024253

tion effect. Males 2.5 months old were irradiated with x-rays in a dose of 600 rad with dose power of 74—75 rad/min. Experimental animals were irradiated in an atmosphere of 0.5% carbon monoxide; controls were irradiated in a normal atmosphere. Results showed differences in the mortality rate when mice of these different strains were irradiated with CO as a protector. Irradiation with 600 rad caused death in only 39% of mice of the radioresistant strain (CC₅₇Br) protected with CO, as compared with a 74% mortality in the controls. Sixty-nine percent of the radiosensitive mice (C₃H) protected with CO died, as against 90% of the controls. It was noted that with the use of carbon monoxide as a radioprotector, unlike diethylstilbestrol, the characteristics of the strain influenced the results of irradiation. The coefficient of protection of the organism with this dose is 0.47 for CC₅₇Br mice and 0.23 for C₃H mice. With CC₅₇Br mice, CO protected the gastrointestinal and hematopoietic systems equally; however, for the other strain the protective effect of CO was more evident on the gastrointestinal system. Both with and without the protection of carbon monoxide, CC₅₇Br mice recovered lost body weight more rapidly after irradiation than C₃H mice. Similar data were obtained in previous experiments with diethylstilbestrol. For C₃H mice regeneration of the thymus gland took longer than for CC₅₇Br mice. Carbon monoxide had no positive effect on thymus recovery. Once again these results agree with results of other experiments by the authors,

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ACC NR: AT5024253

in which the lack of a specific protective effect on the thymus gland was noted when mice were irradiated with the use of diethylstilbestrol as a protector. Experimental results also showed that carbon monoxide reduces overcompensation of the weight of the liver after irradiation with 600 rad (by the 21st—30th day after irradiation). The reaction of the spleen to irradiation in a carbon monoxide atmosphere was identical for both strains of mice. In CC₅₇Br mice protected with CO, a sharp increase in the weight of the adrenals was observed on the 7th day after irradiation. When diethylstilbestrol was used as the protector, this phenomenon was observed on the 2nd—4th day after irradiation. It was noted that with 600 rad of x-rays, CO does not affect the change in weight of the testes. This lack of protection was also observed during irradiation of mice with the use of diethylstilbestrol. Orig. art. has: 12 figures and 9 tables. [JS]

SUB CODE: LS/ SUBM DATE: none/ ORIG REF: 020/ OTH REF: 014

Card 3/3

NUZHDIK, N.I.; NIZHNIK, G.V.

Spermatozoon protection in rabbits from genetic injuries caused
by irradiation in vitro. Trudy Inst. gen. no. 32:229-237 '65. (MIRA 18:10)

NUZHIDIN, N.I.; KURNISHKOV. I.S.

Nature of the effect of gamma rays of varying intensity on the
frequency of the formation of chromosomal aberrations in mammalian
liver cells. Trudy Inst. gen. no.32:257-265 '65.

(MIRA 18:10)

NUZHIDIN, N.I.; FILEV, K.A.

Relation between the rate of chromosomal aberrations and the intensity of seed irradiation and their humidity. Dokl. AN SSSR 160 no.1:224-226 Ja '65. (MIRA 12:4)

1. Institut genetiki AN SSSR i Tsentral'naya genet cheskaya laboratoriya, Sofiya, Bolgariya. 2. Chlen-korrespondent AN SSSR (for Nuzhdin).

10804-66 EWT(m)
ACC NR: AT5024259

SOURCE CODE: UR/2670/65/000/032/0257/0265

AUTHOR: Nuzhdin, N. I. (Corresponding member AN SSSR); Kurnishkov, I. S.

ORG: Institute of Genetics, Academy of Sciences SSSR (Institut genetiki, Akademiya nauk SSSR)

TITLE: Study of the nature of the effect of gamma rays of various intensities on the incidence of chromosome aberrations in mammalian liver cells

SOURCE: AN SSSR. Institut genetiki. Trudy, no. 32, 1965, Deystviye ioniziruyushchikh izlucheniya na rastitel'nyy i zhivotnyy organizmy (Effect of ionizing radiation on plant and animal organisms), 257-265

TOPIC TAGS: radiation biologic effect, biologic mutation, animal genetics, biologic metabolism, mouse, liver

ABSTRACT: Experiments were conducted to determine the relationship between the dose power of radiation and the frequency of chromosome aberrations in somatic mammalian cells. Liver cells were chosen because they are characterized by high metabolic activity and a low mitotic index. CCl₄ was injected to stimulate the liver parenchyma to divide. Mature male mice were irradiated with Co⁶⁰ gamma rays in a dose of 300 rad with radiation intensities of 6.7-8 rad/min and 269-304 rad/min. It was found that the degree of radiation injury of the nuclear structures of liver cells, with the same absorbed tissue dose, depends to a significant degree on the intensity of gamma-irradiation. More concentrated irradiation causes an increased yield of chromosome

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UDC: 577.391

L 10804-66

ACC NR: AT5024259

aberrations (mostly in the form of bridges) as compared with prolonged irradiation. Experiments showed that when liver cells were subjected to gamma irradiation with an intensity of 6.7 rad/min and 269 rad/min, stable and irreversible chromosome damage resulted. The frequency of cells with chromosome rearrangements remained at approximately the same level even after 6 months; thus, it was concluded that the degree of injury is independent of the time from the moment of irradiation to the beginning of artificially induced cell multiplication in the tissue studied. It is postulated that after the torn ends of chromosomes have reunited, the reorganization capacity is lost, and it is impossible to restore the initial chromosome structure. It was concluded that the radiation intensity is a significant factor in radiation mutagenesis. Orig. art. has: 2 tables. [JS]

SUB CODE: 06 SUBM DATE: none/ ORIG REF: 015/ OTH REF: 034/

6C
Card 2/2

L 33290-66 ENT(1)/ENT(m)/T JA

ACC NR: AP6028672

SOURCE CODE: UR/0020/66/166/005/1217/1220

AUTHOR: Nuzhdin, N. I. (Corresponding Member AN SSSR); Samokhvalova, N. S. 32
B

ORG: Institute of Genetics, AN SSSR (Institut genetiki AN SSSR)

TITLE: Comparative analysis of the dependence on the physiological state of seeds of chromosome mutations induced by chemically active substances and by ionizing radiation (gamma-rays) 19

SOURCE: AN SSSR. Doklady, v. 166, no. 5, 1966, 1217-1220

TOPIC TAGS: biologic mutation, radiation biologic effect, plant genetics, plant reproduction

ABSTRACT: Barley seeds in a state of enforced dormancy and organic dormancy (cf. N. I. Nuzhdin and R. L. Dozortseva, Izv. AN SSSR, Ser. Biolo, no. 5, 679, 1961) were subjected to the action of gamma-rays or of one of the chemical mutagens ethyleneimine (EI), N-nitroso-N-methylurethane (NMU), and diethanolamine salt of maleic acid hydrazide (HMA). The results obtained on irradiation with gamma-rays confirmed the earlier finding by Nuzhdin to the effect that the number of chromosome aberrations produced differed greatly depending on whether the seeds were in a state of enforced or organic dormancy. The number of aberrations produced by gamma-irradiation and EI was greater for seeds artificially brought out of organic dormancy and germinating 10 days later than for seeds treated in the same manner and allowed

Card 1/2

UDC: 575.23:001.5

L 38250-66

ACC NR: AP6028672

to germinate without delay. The same difference, but to a lesser degree, was found for seeds treated with HMA, while no effect of the length of time elapsed before germination was observed in the case of seeds treated with NMU. Upon the action of gamma-rays, bridging and fragmentation of chromosomes occurred in a ratio of 1:1.0. This ratio was 1:1.6 and 1:1.4 on treatment of the seeds with EI and HMA, respectively. The results obtained showed that the mutagenic effect of gamma-rays, EI, and HMA depended to a considerable extent on the physiological state of the seeds. Orig. art. has: 1 table. [JPRS: 36,932]

SUB CODE: 06 / SUBM DATE: 29Sep65 / ORIG REF: 004 / OTH REF: 014

Card 2/2

NUZHDIK, P.A.; ROD'KIN, P.D.

Methods for the determination of peptic activity. Lab. delo 5 no.1:
3-4 Ja-F '59. (MIRA 12:3)

1. Iz laboratorii kafedry biokhimii Omskogo veterinarnogo instituta.
(PEPSIN)

NUZHDIK, P.S.

All-Union Communist Party work

Political activity in the collective of the Kamyshin forest conservation station Les. Khoz.

No. 5, May, 1952

9. Monthly List of Russian Accessions, Library of Congress, August 1953/2 Unclassified.

SOIN, A.; NUZHDIN, V.

Work of a computing and business machine service center. Den. i kred.
17 no.8:62-65 Ag '59. (MIRA 12:11)

1. Glavnyy bukhgalter Dnepropetrovskoy kontory Gosbanka (for Soin).
2. Nachal'nik mashinoschetnoy stantsii Dnepropetrovskoy kontory Gosbanka (for Nuzhdin).
(Dnepropetrovsk--Machine accounting)

NUZHDIK, V.

Transistorized millivoltmeter. Radio no. 3:50-52 Mr '63.
(MIRA 16:2)

(Voltmeter)

BOL'SHOV, V., inzh.; SMIRNOV, V.; NUZHIDIN, V.

Automatic device for measuring arterial blood pressure.

Radio no.6:31-33 Je '64.

(MIRA 17:10)

ACC NR: AP6035940

SOURCE CODE: UR/0413/66/000/020/0199/0199

INVENTOR: Zemlyanitskiy, A. N.; Karpovich, B. K.; Motin, I. I.; Stolyar, A. I.;
Nuzhdin, V. V.; Ponomarev, I. V.

ORG: none

TITLE: Centrifugal blower water separator for aircraft ventilation systems.
Class 62, No. 187539

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 199

TOPIC TAGS: aircraft cabin environment, aircraft cabin equipment, centrifugal blower,
air conditioning equipment

ABSTRACT: An Author Certificate has been issued for a centrifugal blower water separator for aircraft ventilation systems, consisting of a housing with intake apertures and a nozzle; the housing contains a rotating drum with radial blades and has openings along its outer surface. To simplify construction and decrease its size, between the blades and end wall in the back portion of the drum is mounted a guide arranged to direct the flow in the opposite direction; the guide channels air into an outlet duct, which is located along the blower's axis and fastened in the forward part of the housing.

SUB CODE: 01, 13/ SUBM DATE: 06Nov64/

UDC: 629.13.01/06
66.071.7

Card 1/1

137-58-6-11326

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 10 (USSR)

AUTHOR: Nuzhdin, V.K.

TITLE: Ways of Increasing the Extraction of Copper and More Exhaustive Utilization of Ore Material at the Tur'insk Concentrating Mill (Puti povysheniya izvlecheniya medi i kompleksnogo ispol'zovaniya rudnogo syr'ya na Tur'inskoy obogatitel'noy fabrike)

PERIODICAL: Byul. Tsentr. in-t inform. M-va tsvetn. metallurgii SSSR, 1957, Nr 7, pp 8-11

ABSTRACT: Investigations performed under laboratory and, in part, under pilot-plant conditions, with ores from the Tur'insk group of deposits shows that Cu recovery may be increased by the use of lime in the comminution cycle (10-30 g/m³ CaO), while pyrite and calcite concentrates may be obtained as by-products by the flotation of Cu tailings, and low-phosphorus Fe concentrate by magnetic separation. Process diagrams and procedures selected under laboratory conditions are adduced.

L.B.

1. Ores--Processing 2. Silic acid--Reduction 3. Ores--Flotation

Card 1/1

AUTHOR: Muzhdin, V.K.

136-11-7/17

TITLE: Use of Circulating Water as a Means of Lowering the Cost of Flotation Concentrates (Primeneniye oborotnoy vody - put' k snizheniyu sebestoimosti flotatsionnykh kontsentratsiy)

PERIODICAL: Tsvetnyye Metally, 1956, No.11, pp. 7 - 13 (USSR).

ABSTRACT: The author describes work carried out jointly by the Uralmekhanobr organisation and workers of the experimental and production plant at the Sredneural'sk Copper-smelting Works (Sredneural'skiy medeplavil'nyy zavod) to compare the chemical and technological properties of fresh and waste water at the works. The aim was to reduce the use of fresh water, which costs 14 Kopeks per m³ and of which 3.92 m³ were used in 1956 per ton of ore treated. The results (Table 1) indicated that waste water is satisfactory for flotation of copper. The author describes also laboratory experiments in which the work flotation scheme was adopted using fresh and waste water in different series: the results of the two series were similar. Recommended conditions are summarised and flow sheets given. Results obtained when they were used are described: these showed no deterioration with increasing re-circulation. Analyses of the waste water at various stages are shown, indicating appreciable changes which do not, however, affect

Card 1/1

136-11-2/17

Use of Circulating Water as a Means of Lowering the Cost of
Flotational Concentrates

flotation. The experiments were carried out with ores of the Degtyarsk deposits and the general conclusion is that with single-stage flotation coarse copper concentrates with 7.25% Cu (recovery 75.6%, without allowing for copper intermediate products), easily purified with activated charcoal. Data on materials consumptions are given, together with estimates of costs made by Yu.I. Mikhal'skiy of the Works. There are 6 figures and 5 tables.

ASSOCIATION: Uralmekhanobr

AVAILABLE: Library of Congress

Card 2/2

1. Copper-Smelting
2. Water-Contamination
3. Water-Control systems

NUZHDIK, V.K.; PYATIGORSKAYA, G.Z.

Ways for the complete utilization of copper pyrites from the Khudat
deposit. TSvet. met. 37 no.9:9-10 8 '64. (MIRA 18:7)

NUZHDIK, Yu.

Fourteen days in Japan. West. prom. i khud. promys. 2
no.6:36-37 Je '61. (MIRA 14:7)

1. Referent Tsentral'nogo komiteta profsoyuzov rabochikh
mestnoy promyshlennosti i kommunal'nogo khozyaystva po
mezhdunarodnym svyazyam.

(Japan---Description and travel)

NUZHDINA, G. P. and GOLDYREV, L. N.

Concerning the Isomerization of Ethine Diphthalide, page 1275, Sbornik Statey po ~~obshchey~~ khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Ural State U imeni A. M. Gor'kiy

NUZHDINA, L.A.; POPOV, V.S.

Device for measuring and registering corona losses in high-voltage
electric power transmission lines. Sbor. rab. vop. elektromekh.
no.5:287-298 '61. (MIRA 14:6)

(Corona (Electricity))
(Electric power distribution)
(Electric measurements)

NUZHDIINA, L.A.; CHERNYSHEV, V.Ye.

Voltage limiters for preventing overload of instruments. Izv.
tekh. no.3:41-42 Mr '62. (MIRA 15:2)
(Voltage regulator)

L 60211-65 EWT(d)/EWT(1)/EEC(k)-2/EEC-4/EEC(c)-2/EED-2/EWA(h) Pn-4/Pq-4/Pac-4/
Pae-2/Pe-2 GS
ACCESSION NR: AT5013569 UR/0000/64/000/000/0212/0222

AUTHOR: Brusilovskiy, K. A. (Candidate of technical sciences);
Kolchanogov, L. S.; Nuzhdina, L. A.; Popov, V. S.

38
8+1

TITLE: Converter of resistance into electric-oscillation period

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatika, telemekhanika i priborostroyeniye (Automatic control, remote control, and instrument manufacture). Moscow, Izd-vo Nauka, 1964, 212-222

TOPIC TAGS: converter, ⁸telemetering, telemetering converter, resistance frequency converter, analog converter

ABSTRACT: A description, an error analysis, and the results of an experimental investigation are presented of an analog converter (a laboratory model) that turns electrical resistance into a proportional period of a-c oscillations. The converter includes an RC generator, a Wien bridge, and an amplifier. Two frequency-dependent bridge arms, which constitute an L-shaped quadripole, serve as a positive-feedback circuit to the generator; the remaining two arms, as a

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L 60211-65

ACCESSION NR: AT5013569

negative-feedback circuit. A TP2/0.5 thermistor is used as a nonlinear resistor. A linear relation between the input resistance and output period is claimed. The error, at high amplifier gains, is largely due to the variation of capacitances in the Wien bridge. The deviation of the output period, when the converter is used as a thermometer, is determined by the temperature coefficient of the resistance thermometer and by the measurand range. The possibility of attaining an overall systematic error of about 0.1% at an ambient temperature of $-20 \pm 30^\circ\text{C}$ and a supply-voltage variation of $\pm 10\%$ is claimed. Orig. art. has: 4 figures and 23 formulas.

ASSOCIATION: none

SUBMITTED: 24Oct64

ENCL: 00

SUB CODE: DP, EC

NO REF SOV: 005

OTHER: 000

Card 2/2

L 19446-65

ACCESSION NR: AP4047580

S/0103/64/025/010/1511/1518

AUTHOR: Popov, V. S. (Odessa, Leningrad); Nuzhdina, L. A. (Odessa, Leningrad); Skomorovskiy, L. V. (Odessa, Leningrad) 2
B

TITLE: Device for proportional conversion of resistance into period of electric oscillations

SOURCE: Avtomatika i telemekhanika, v. 25, no. 10, 1964, 1511-1518

TOPIC TAGS: resistance frequency converter

ABSTRACT: A theoretical and experimental investigation is presented of a modified Wien-bridge RC-oscillator, one of whose arms includes a thermistor (TP-2/0.5 type). Design formulas for such an oscillator are developed. Experimental curves of the transient time vs. control-resistance jump (up to 15 times) are supplied, as well as the dependence of the oscillation period on the control resistance (tabulated). Errors are evaluated. The same oscillator, with

Card 1/2

L 1946-65

ACCESSION NR: AP4047580

minor changes, can be used for the conversion of small variations of resistance into relatively large variations of frequency (tensometer case). Orig. art. has: 3 figures, 26 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 04Apr63

ENCL: 00

SUB CODE: IE

NO REF SOV: 003

OTHER: 000

Card 2/2

NUZHDINA, M.I.; GESELEVICH, A.M., prof., red.

[New surgical apparatus and instruments and experience in their use; bibliographical index of papers o. the scientists of the Scientific Research Institute of Experimental Surgical Apparatus and Instruments] Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniia; bibliograficheskii ukazatel' rabot sotrudnikov NIIEKhai. Moskva, Nauchno-issl. in-t eksperimental'noi khirurgicheskoi apparatury i instrumentov, 1961. 47 p. (MIRA 17:9)

GAMOVA, Anna Samuilovna; NUZHDIINA, Margarita Vyacheslavovna; KACHKO, L.I.,
retsensent; KOGAN, A.B., nauchnyy red.; ZAITSEVA, T.M., red.;
MEDVEDEV, L.Ya., tekhn.red.

[Chemical finishing of footwear] Khimicheskaya otdelka obuvi.
Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po legkol promyshl..
1958. 199 p. (MIRA 12:2)

(Shoe manufacture)

PROSKURYAKOV, N.I.; NUZHDINA, T.N.

Proteins of wheat germ and their enzymatic activity. Nauch.dokl.
vys.shkoly; biol.nauki no.2:148-152 '60. (MIRA 13:4)

1. Rekomendovana kafedroy biokhimii rasteniy Moskovskogo gosudarst-
vennogo universiteta im. M.V. Lomonosova.
(WHEAT GERM) (ENZYMES)

SALMANOVA, L.S.; GORBACHKOVA, Ye.A.; NUZHDINA, T.M.

Methods for determining the activity of cytolytic enzymes.
Trudy TSentr.nauch.-issl.inst.piv.,bezalk. i vin.prom. no.9:
53-62 '62. (MIRA 16:10)